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Psychological preparedness for trauma as a protective factor in survivors of torture

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ABSTRACT

Background. Although much research has focused on mechanisms of traumatization and factors related to post-trauma psychological functioning in survivors of trauma, there have been few studies of survivors of torture despite the widespread practice of torture in the world. The aim of this study was to examine the role of 'psychological preparedness' for trauma in post-traumatic stress responses in survivors of torture.

Method. Thirty-four torture survivors who had no history of political activity, commitment to a political cause or group, or expectations of arrest and torture were compared with 55 tortured political activists, using structured interviews and measures of anxiety, depression, and post-traumatic stress disorder.

Results. Compared with tortured political activists, tortured non-activists were subject to relatively less severe torture but showed higher levels of psychopathology. Less psychological preparedness related to greater perceived distress during torture and more severe psychological problems, explaining 4% of the variance in general psychopathology and 9% of the variance in post-traumatic stress disorder symptoms.

Conclusions. The study findings lend support to the role of prior immunization to traumatic stress and to unpredictability and uncontrollability of stressors in the effects of traumatization. Further research aimed at identifying the behavioural and cognitive components of psychological preparedness that play a role in traumatization may provide useful insights into effective treatment strategies for survivors of torture.

INTRODUCTION

In recent years trauma researchers have focused on mechanisms of traumatization and factors related to post-trauma psychological functioning in survivors of trauma. Severity of trauma (Foy *et al.* 1984; Breslau & Davis, 1987), age at trauma, education, psychiatric illness (Green *et al.* 1990), intelligence (McNally & Shin, 1995), ability to maintain calmness and control during traumatic events (Hendin & Haas, 1984), post-trauma life events (Solomon *et al.* 1988) and social support (Keane *et al.* 1992) have received attention as predictors of post-trauma psychological status. Cognitive factors are also thought to play a role in the development of post-traumatic stress disorder (PTSD). These include violation of basic assumptions concerning personal safety, positive self-regard, and perception of the world as meaningful (Janoff-Bulman, 1992), inability to find an acceptable explanation for the trauma (Lifton & Olson, 1976) or violation of previously held assumptions of safety (Foa *et al.* 1989) and violation of beliefs that the world is a just and orderly place where people usually get what they deserve (Lerner & Miller, 1978).

There have been few studies of these factors in PTSD in survivors of torture, mainly due to the

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difficulties in conducting research in this politically sensitive area. In a recent study (Başoğlu *et al.* 1994*a*, *b*) we compared 55 tortured political activists with 55 non-tortured political activists on measures of psychological functioning. Despite the severity of their torture, only 10 of the 55 political activists had mild to moderate PTSD and the mean anxiety and depression scores in the whole group were within normal range. In an attempt to explain this unexpected finding, we tentatively hypothesized (Başoğlu *et al.* 1994*a*, *b*) that this sample may have had a high level of prior 'psychological preparedness' for trauma. Psychological preparedness might stem from variables such as knowledge of torture methods, prior expectations of torture, exposure to similar traumatic stressors during political activity leading to a sense of mastery and training in stoicism techniques. This hypothesis is based in part on evidence in the animal literature that predictable stressors generally have less deleterious impact than do unpredictable stressors (where predictability is defined as knowledge of when a stressor will occur and/or what its characteristics will be). The hypothesis is also based, in part, on evidence from the animal literature that controllable stressors have less deleterious impact than do uncontrollable stressors (where controllability is defined by the ability to modulate the impact of a stress through escape, avoidance, or reduction in its intensity) (see Mineka & Henderson, 1985, for a review). Moreover, prior exposure to controllable stressors, perhaps leading to a sense of mastery, can immunize against the deleterious effects of subsequent exposure to uncontrollable stressors (e.g. Williams & Maier, 1977; Moye *et al.* 1983). Unfortunately, in the previous study it was not possible to test this hypothesis reliably because there was little variability in 'psychological preparedness' characteristics of the sample. Indeed, the majority of the study participants were highly politically committed individuals with a strong belief system and possible prior immunization to traumatic stressors.

Since the completion of our previous study, we have obtained data on a new group of survivors of torture in Turkey who were different from political activists in being much less 'psychologically prepared' for trauma. They were selected from among torture survivors who had little or no political involvement or commitment to a cause, experienced torture more unexpectedly and had less prior exposure to similar stressors. We were, thus, able to test the hypothesis that psychological preparedness for trauma mitigates the traumatic effects of torture. The present report involves a comparison of the new group of 34 non-activist torture survivors with 55 tortured political activists from our previous study. The present study also allowed examination of the effects of torture on a group of torture survivors who, relative to political activists, were more representative of ordinary civilians caught up in war and political violence in many parts of the world.

METHOD

Selection of sample

As in the previous study (Başoğlu *et al.* 1994*a*, *b*), the 'snow-ball' method of sample selection was used. First, a list of potential study participants was drawn up, based on information from various referring sources, including a radical left-wing political party, Istanbul Human Rights Association (IHRA), and the project workers themselves. In order to minimize referral bias, each referring source was asked to list all persons they knew had been tortured, regardless of whatever impression or information they had concerning the survivors' psychological status. The referring source then identified the torture survivors who were suitable for the study and available for contact. Reasons for unavailability (e.g. living out of town, address not known, etc.) were noted and care was taken to establish contact with every available person on the list, often indirectly through the referring source. Reasons for rejection were also noted.

Of the 150 survivors of torture listed initially, 60 (40%) were excluded for unavailability (address not known or left town) and 10 (7%) for illiteracy. Of the 80 torture survivors who were contacted, 46 (57%) refused interview for reasons including fear of retaliation by the authorities, reluctance to talk about their torture and living too far from the study site. Thirty-four survivors of torture agreed to participate in the study (23% of those included in the initial list). The refusal rate among the political activists in the previous study was 0.

In the previous study we had selected torture survivors who had a history of: (1) past or present membership in a political group or organization; (2) strong identification with the ideals, normative culture, and belief system of a political group; and (3) active work in a political group to promote a certain cause. Most were active members of radical political parties, trade unions, professional organizations, and various youth or women's associations with political missions. In the new sample no participant met criteria 2 and 3 but two were members of a trade union or a legal left-wing political party. They were not, however, active members with strong ideological commitment, and had been tortured either for non-political reasons or because of their association with politically involved friends or relatives. Given the great difficulties in finding participants for the present study, no attempt was made to match the two study groups on demographic variables.

Other inclusion criteria included age 18 to 65, at least 3 months of time since last torture, literacy and no forensic history (i.e. court conviction) due to non-political causes. The latter criterion was included to avoid as much as possible the confound of a possible relationship between antisocial personality variables and psychopathology.

The circumstances leading to arrest and torture included allegations of manslaughter ($N = 1$), theft ($N = 1$), murder ($N = 1$), kidnapping ($N = 1$), being accessory to kidnapping ($N = 1$), possessing fire arms ($N = 1$), involvement in a fight ($N = 2$), argument with a government official ($N = 2$), associations with or information about friends or relatives who were involved in political activity ($N = 11$), attendance at a mass demonstration as a sympathizer, uninvolved observer, or a passer-by ($N = 6$), allegations of illegal political activity ($N = 4$), possessing political, (but not illegal) publications ($N = 1$), and homosexuality/transvestism ($N = 1$). One study participant had been systematically tortured by foster parents. None of the allegations of non-political crimes was confirmed by a court conviction.

All participants were given explanation as to the study aims and written informed consent was obtained. Great care was taken to avoid endangering the study participants or the project workers. Strict confidentiality was emphasized and the study participants were left free to remain anonymous or use a pseudonym. Five study participants used a pseudonym. The IHRA's support for the project helped the interviewers establish a trusting relationship with the study participants. After assessment, all study participants were offered free treatment if they or the interviewers felt the need for it.

The interviews were carried out by one medical doctor who was also a Ph.D. student in psychology (M.P.) and seven psychiatrists (five of whom were also gathering data for a concurrent project). The interviewers were trained in the use of semi-structured instruments by psychiatrists who had conducted the interviews in the previous study. The interviews took place between June 1995 and March 1996.

Assessment

The measures (see Başoğlu *et al.* 1994*a*, *b*, for details) included the Structured Clinical Interview and Diagnosis (SCID) (Spitzer *et al.* 1987), Semi-structured Interview for Survivors of Torture (SIST) (Başoğlu *et al.* 1994*a*) and Exposure to Torture Scale which provided information on types of torture events and perceived distress ratings for each form of torture (0 = no/minimal distress, 4 = extremely distressing). We also used the Clinician-Administered PTSD Scale (CAPS) (Blake *et al.* 1990; Weathers and Litz, 1994) for assessment of PTSD, which was not used in the previous study.

Clinical ratings included the MMPI-PTSD Scale (Hathaway & McKinley, 1983), modified Turkish version of the Mississippi Scale for Combat-Related PTSD (PTSD-Rating Scale (Keane *et al.* 1988), Beck Depression Inventory (BDI) (Beck *et al.* 1974), Hamilton Depression Rating (HAM-D) (Hamilton, 1969), Hamilton Anxiety Scale (HAM-A) (Hamilton, 1959), State–Trait Anxiety Inventory (STAI) (Spielberger *et al.* 1970) and General Health Questionnaire (GHQ) (Goldberg & Hillier, 1979), which measures anxiety, depression, somatic symptoms and social disability. The standardized Turkish-language versions of MMPI (Savaşır & Erol, 1990), BDI (Hisli, 1987), STAI (Öner & LeCompte, 1982) and GHQ (Kılıç, 1996) were used. An inter-rater reliability study of the SIST and SCID, involving four subjects who were not included in the study, yielded a concordance rate of 95% for both instruments. The Mississippi Scale for Combat-Related PTSD (PTSD-RS) was modified by replacing references to combat with references to detention/imprisonment/torture and translated into Turkish to be piloted in the present study groups.

Data on the SCID-PTSD module were not obtained due to a misunderstanding which led the interviewers to think that the CAPS replaced the SCID-PTSD module in the new study. As only SCID was used in the previous study, this posed a problem in comparing the groups on PTSD diagnosis. The scoring system of the CAPS, however, allowed for a translation of CAPS ratings into SCID ratings (Blake *et al.* 1990; Weathers & Litz, 1994). Symptoms with a frequency rating of $\geqslant 1$ (occurred at least once in the designated time frame) and an intensity rating of $\geqslant 2$ (at least moderately intense or distressing) were rated as present.

Variables selected for analysis

The variables selected for analysis included age, sex, education, income, marital and ethnic status, family and personal history of psychiatric illness, forensic history characteristics (total number of detentions, total duration of detentions, attendance at court trials, conviction from alleged crime(s), imprisonment, total number of imprisonments and total duration of imprisonments), number of different torture events reported, time since last torture), perceived support from partner, close relatives, and friends (0 = strong support, 4 = no support at all), lifetime non-torture psychosocial stressors (sum of severity scores for life events before, during, and after captivity, rated according to the DSM-III-R severity of Psychosocial Stressors Scale (American Psychiatric Association, 1987) (0 = none, 6 = catastrophic) and number of SCID-PTSD symptoms.

Psychological Preparedness for Trauma (PPT) scale

This scale was part of the SIST and consisted of seven items with well-defined anchor points: (*i*) 'preparedness for arrest and torture' (0 = very well prepared, 3 = not at all prepared; based on an evaluation of the survivor's political views, commitment to a cause, preparedness to assume the ultimate responsibility for the possible consequences of this commitment, and any training in physical and mental stoicism as part of the political group activity); (*ii*) 'political activity prior to captivity' (0 = very active, 3 = not at all active); (*iii*) 'prior knowledge about torture events' (1 = fully informed/aware, 5 = not informed/aware at all); (*iv*) 'threat of arrest/torture prior to captivity' (0 = was under constant threat (e.g. happened to friends, comrades; was in hiding, arrest warrant issued, etc), 3 = no threat at all, an entirely unexpected happening); (v) 'commitment to a political cause' (0 = very committed (militantly, to the point of self-sacrifice), 4 = not committed at all (e.g. accidental involvement); (*vi*) 'commitment to a political group' (0 = very committed (complete identification with group norms), 4 = not committed at all (e.g. not member of any group)); and (*vii*) 'predictability of arrest/torture' (0 = not at all unexpected, 4 = very sudden/unexpected).

A reliability analysis of the seven items yielded a Cronbach's alpha of 0·80. A second analysis, excluding 'prior knowledge about torture', which showed the lowest inter-item correlations (all rs $<$ c 0·60), yielded a substantially higher Cronbach alpha (0·94). Inter-item correlations ranged from 0·55 to 0·95 and the item-total correlations from 0·64 to 0·90. The six items were therefore summed up to derive a total score of Psychological Preparedness for Trauma (PPT) (range 0–21). Higher scores indicated less preparedness.

Data analysis

Both between- and within-group analyses were performed to examine the effect of PPT on psychological status. χ^2 tests were used for categorical variables and t tests for continuous variables. The two groups were pooled for within-group analyses, in order to achieve greater statistical power. Pearson correlation and principal components analyses examined the intercorrelations between the predictor variables. Multiple regression analyses were used to examine the effect of PPT on psychological status, controlling for the sample characteristics on which the groups differed.

RESULTS

As the non-activists had not been matched with political activists in sample selection, the two groups were first compared on sample charac-

Table 1. *Sample characteristics*

	Political activists (*N* = 55)	Non-activists (*N* = 34)	
Age	31 (s.d. 5·5)	32 (9·7)	*t* = 0·3 NS
Sex			
Female	25 (45 %)	11 (32 %)	χ^2 = 1·5 df = 1 NS
Male	30 (55 %)	23 (68 %)	
Education			
Literate/Primary school	2 (4 %)	21 (62 %)	χ^2 = 40 df = 3 *P* < 0·0001
Secondary school	5 (9 %)	4 (12 %)	
High school	29 (53 %)	5 (14 %)	
University/Post-graduate	19 (34 %)	4 (12 %)	
Income (1 = low, 4 = high)	1·7 (s.d. 0·6)	1·2 (s.d. 0·8)	*t* = −2·9 *P* < 0·01
Marital status			
Married	26 (47 %)	18 (53 %)	χ^2 = 0·3 df = 1 NS
Single	29 (53 %)	16 (47 %)	
Occupation			
Labourer	5 (9 %)	11 (32 %)	χ^2 = 32 df = 6 *P* < 0·0001
Government employee	21 (38 %)	5 (15 %)	
Small business holder	6 (11 %)	9 (26 %)	
Professional	9 (16 %)	2 (6 %)	
Student	3 (6 %)	1 (3 %)	
Unemployed	11 (20 %)	0	
Housewife	0	6 (18 %)	
Ethnic status			
Turkish	37 (67 %)	13 (38 %)	χ^2 = 13 df = 2 *P* < 0·01
Kurdish	8 (15 %)	17 (50 %)	
Other	10 (18 %)	4 (12 %)	
Family history of psychiatric illness	13 (24 %)	5 (15 %)	χ^2 = 1·0 df = 1 NS
Past psychiatric illness	6 (11 %)	2 (7 %)	χ^2 = 0·5 df = 1 NS
Preparedness for arrest/torture (0–3)	1·1 (1·0)	2·7 (0·5)	*t* = 10·4 df = 85 *P* < 0·001
Political activity prior to captivity (0–3)	0·7 (0·8)	2·5 (0·6)	*t* = 12·8 df = 84 *P* < 0·001
Prior knowledge about torture events (1–5)	3·9 (1·0)	2·7 (1·2)	*t* = −5·2 df = 87 *P* < 0·001
Threat of arrest prior to captivity (0–3)	0·7 (0·8)	2·4 (0·8)	*t* = 9·7 df = 87 *P* < 0·001
Commitment to a political cause (0–4)	0·7 (0·8)	3·1 (1·0)	*t* = 12·5 df = 87 *P* < 0·001
Commitment to a political group (0–4)	0·9 (1·0)	3·2 (1·0)	*t* = 10·4 df = 87 *P* < 0·001
Predictability of arrest/torture (0–4)	1·7 (1·6)	3·3 (1·1)	*t* = 5·9 df = 85 *P* < 0·001

teristics and other potential predictors of long-term psychological status. A comparison of the two groups on sample characteristics is shown in Table 1.

The differences in education, income, and occupation suggested that the groups were drawn from different social classes. Higher percentage of unemployment among the political activists was due to the fact that many of them had recently come out of prison at the time of assessment in 1992.

Although the political activists and non-activists had experienced a similar number of detentions (3·4, s.d. = 4 *v.* 3·2, s.d. = 5, *t* = −0·2, df = 87, NS), the non-activists spent less time in detention (15 days, s.d. = 21, *v.* 39 days, s.d. = 31, *t* = −4·4, df = 86, *P* < 0·001). They were also less likely to have been tried at court (44 % *v.* 96 %, $\chi^2 = 32$), convicted of an alleged (political) crime (12 % *v.* 55 %, $\chi^2 = 16$), and imprisoned (27 % *v.* 89 %, $\chi^2 = 36$) (all dfs = 1 and all *P*s < 0·0001). Furthermore, the non-activists had fewer imprisonments (0·3, s.d. = 0·5 *v.* 1·4, s.d. = 0·9, *t* = −7·1, df = 86, *P* < 0·001), spent less time in prison (3·8 months, s.d. = 9·7 *v.* 48 months, s.d. = 56, *t* = 5·8, df = 59, *P* < 0·001), and reported fewer different kinds of torture events (17, s.d. = 10 *v.* 23, s.d. = 7, *t* = −2·6, df = 51, *P* < 0·05) than did the political activists. In addition, relative to the time of assessment, they had been more recently tortured than had the political activists (34 months, s.d. = 44 *v.* 61 months, s.d. = 44, *t* = −2·8, df = 71, *P* < 0·01). The groups did not significantly differ in severity of lifetime non-torture stressors and perceived social support from significant others.

There were significant between-group differ-

Table 2. *Comparison of torture events reported by political activists and non-activists*

Forms of torture	Political activists N (%)	Non-activists N (%)	χ^2
Verbal abuse	55 (100)	33 (97)	0·06
Beating of body	54 (91)	31 (91)	2·4
Beating of genitals	27 (49)	13 (38)	1·0
Beating of head	46 (84)	30 (88)	0·4
Blindfolding	53 (96)	23 (68)	12***
Alternating gentle/rough treatment	51 (93)	14 (41)	26****
Threats of further torture	47 (85)	22 (65)	4·1*
Forced standing	48 (87)	21 (62)	6·5**
Prevention of personal hygiene	45 (82)	15 (44)	12***
Pulling by hair	43 (78)	21 (62)	2·0
Electrical torture	43 (78)	13 (38)	14***
Witnessing torture	41 (74)	18 (53)	3·5
Threats of death	40 (73)	24 (71)	0·01
Stripping naked	39 (71)	9 (27)	15****
Prevention of urination/defaecation	39 (71)	13 (38)	7·9**
Isolation	37 (67)	9 (27)	12***
Sleep deprivation	36 (65)	18 (53)	0·9
Restriction of movement	34 (62)	6 (18)	15***
Falaqa	34 (62)	18 (53)	0·7
Deprivation of medical care	34 (62)	10 (29)	7·6**
Exposure to extreme heat or cold	33 (60)	13 (38)	3·2
Threats of rape	32 (58)	10 (29)	5·9*
Denial of privacy	31 (56)	13 (38)	2·1
Threats against family	29 (53)	17 (50)	0·01
Infested surroundings	29 (53)	0	24****
Food deprivation	28 (51)	12 (35)	1·5
Hanging by wrists	28 (51)	11 (32)	2·2
Exposure to loud music	25 (45)	12 (35)	0·5
Water deprivation	24 (44)	10 (29)	1·3
Cold showers	23 (42)	11 (32)	0·5
Blows on ears	22 (40)	13 (38)	0·01
Sham executions	21 (38)	7 (21)	2·3
Forced standing with weight on	18 (33)	6 (18)	1·7
Fondling of genitals	17 (31)	10 (29)	0·01
Asphyxiation	13 (24)	5 (15)	0·6
Submersion in water	9 (16)	5 (15)	0·04
Exposure to bright light	7 (13)	4 (12)	0·01
Burning	5 (9)	6 (18)	1·4
Rope bondage	5 (9)	3 (9)	0·01
Throwing of faeces/urine at detainee	5 (9)	3 (9)	0·01
Stretching of extremities	3 (5)	5 (15)	2·2
Needles under toenails or fingernails	3 (5)	2 (6)	0·01
Rape	2 (4)	1 (3)	0·1
Others	29 (53)	16 (47)	

* $P < 0·05$; ** $P < 0·01$; *** $P < 0·001$; **** $P < 0·0001$.

ences on each of the PPT scale items (all Ps $<$ 0·001), indicating that the non-activists had less prior political activity, commitment to a political group or cause, prior threat to torture, prior knowledge of torture, expectations of torture, and preparedness for arrest and torture. These findings supported the validity of our criteria in sample selection.

Table 2 shows a comparison of torture events reported by the two groups. Thirteen torture events were reported less commonly by the non-activists. These differences may in part be due to longer captivity among the political activists group as the number of torture events reported was associated with the duration of detention ($r = 0·44$, $P < 0·001$) and imprisonment ($r = 0·39$, $P < 0·001$). They may, however, also reflect the authorities' differential treatment of detainees according to the degree of their political involvement.

Psychological status: comparison of activists and non-activists

A comparison of groups on clinical measures is shown in Table 3. Only four SCID diagnoses are presented because the prevalence of other psy-

Table 3. *Comparison of psychological status between political activists and non-activists*

	Political activists ($N = 55$)		Non-activists ($N = 34$)		
	Mean	S.D.	Mean	S.D.	t†
Beck Depression	9·5	(7·4)	19	(13)	3·7***
Hamilton Depression	5·0	(4·5)	9·0	(8·0)	2·7**
Hamilton Anxiety	7·5	(6·5)	13	(11)	2·7**
State Anxiety	40	(11)	48	(9·0)	3·8***
PTSD-RS	70	(18)	86	(21)	3·6***
MMPI-PTSD scale	14	(8)	20	(9·5)	2·9**
General Health Questionnaire	6·8	(7·9)	15·5	(14·5)	3·2**
GHQ-Somatic symptoms	1·3	(1·8)	3·2	(3·4)	2·9**
GHQ-Anxiety	1·6	(2)	3·8	(4·2)	2·8**
GHQ-Social functioning	1·5	(2)	2·6	(2·9)	$1·9^{+}$
GHQ-Depression	0·8	(0·3)	2·8	(3·4)	3·2**
Number of PTSD symptoms	5·9	(4·4)	9·1	(4·7)	3·2**
	N	%	N	%	χ^2
SCID Diagnoses					
Current major depression	2	4	8	24	6·5**
Past major depression	16	29	6	18	0·9
Current PTSD	10	18	14	58	4·5*
Lifetime PTSD	18	32	18	53	$2·8^{+}$
PTSD symptoms*					
Intrusive recollections	22	40	27	79	12***
Distress when reminded of trauma	25	46	29	85	12***
Flashbacks	20	36	16	47	0·60
Nightmares	26	47	16	47	0·00
Avoidance of trauma thoughts	12	22	20	59	11**
Avoidance of reminders of trauma	18	33	19	56	3·7*
Inability to recall trauma aspects	20	36	9	27	0·50
Diminished interest in activities	12	22	15	44	3·9*
Feelings of detachment	16	29	12	35	0·14
Restricted affect	12	22	13	38	2·1
Sense of foreshortened future	16	29	15	44	1·5
Sleep disturbance	20	36	20	59	3·4
Irritability/outbursts of anger	19	35	19	56	3·1
Memory/concentration impairment	34	62	18	53	0·40
Hypervigilance	13	24	23	68	15****
Startle reactions	21	38	19	56	0·0
Physiological reactivity	18	33	18	53	2·8

† Symptoms present at some stage following trauma.

$^{+}P < 0·1$; $*P < 0·05$; $**P < 0·01$; $***P < 0·001$; $****P < 0·0001$.

chiatric illnesses in both groups was too low for statistical analysis.

The non-activists had significantly higher scores on all clinical measures and higher prevalence of current major depression, current PTSD, and some PTSD symptoms than did the political activists. A trend towards significance was noted on lifetime PTSD but it failed to reach the 0·05 level (after continuity correction). The consistency of results across all self- and assessor-rated measures suggested that lack of interviewer blindness with regard to group status did not affect the results.

Because the criterion was used in determining symptom presence from the CAPS ratings has a relatively low kappa coefficient (0·78) for predicting the SCID-PTSD diagnosis, a more stringent scoring rule (symptom calibration) (Weathers & Litz, 1994), which yields a kappa coefficient of 0·89, was also used. Symptoms with a severity score (frequency + intensity) at or above a certain cut-off point were scored as present. The cut-off point was 2 for 'intense psychological distress when exposed to trauma cues', 3 for intrusive recollections of trauma, re-experiencing of trauma, nightmares, hypervigilance, startle responses, and physiological reactivity, 4 for avoidance of trauma-related thoughts, avoidance of trauma-related situations, sleep disturbance, irritability, and con-

Table 4. *Pearson correlation coefficients between measures*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Psychological preparedness (less)	—												
2 Education (1 = low, 4 = high)	−0·44***	—											
3 Income (1 = low, 4 = high)	−0·37***	0·34***	—										
4 Ethnic status: Turkish (0, 1)	−0·20	0·34***	0·36***	—									
5 Ethnic status: Kurdish (0, 1)	0·36***	−0·40***	−0·38***	—	—								
6 Duration of detention (days)	−0·49***	0·21*	0·20	−0·07	−0·05	—							
7 Tried at court (0, 1)	−0·60***	0·29**	0·18*	−0·01	0·07	0·44***	—						
8 Convicted of alleged crime (0, 1)	−0·55***	0·21*	0·22*	0·09	−0·13	0·43***	0·44***	—					
9 Total duration of imprisonment (months)	−0·61***	0·12	0·07	0·01	−0·12	0·42***	0·35***	0·63***	—				
10 Number of torture events reported	−0·40***	−0·01	0·07	−0·25*	0·23*	0·44***	0·09	0·30*	0·39***	—			
11 Time since last torture (months)	−0·30**	0·33**	0·17	0·18	−0·31**	0·40***	0·22*	0·28**	0·20	0·08	—		
12 General psychopathology score	0·41***	−0·36***	−0·14	−0·15	0·29**	−0·13	−0·17	−0·32**	−0·35***	−0·01	−0·16	—	
13 Number of PTSD symptoms	0·37***	−0·32**	−0·17	−0·20	−0·20	−0·1	−0·13	−0·20*	−0·26*	0·10	0·03	0·65***	—

* $P < 0·05$; ** $P < 0·01$; *** $P < 0·001$.

centration difficulty, 5 for psychogenic amnesia loss of interest, and alienation, and 6 for emotional numbing. As this criterion yielded lower rates of current ($N = 9$, 27%) and lifetime PTSD ($N = 14$, 41%) in the non-activist group, the significant between-group differences were lost. However, the non-activists still had a significantly higher prevalence of intrusive recollections of trauma (79% *v.* 40%, $\chi^2 = 12$, $P < 0·001$), distress when reminded of trauma (97% *v.* 46%, $\chi^2 = 17$, $P < 0·0001$) and hypervigilance (71% *v.* 24%, $\chi^2 = 17$, $P < 0·0001$) (all dfs = 1) than did the political activists.

The comparison of the groups on CAPS/SCID-PTSD diagnosis may have doubtful validity because the results varied according to which scoring criterion was used. The equivalence of SCID and CAPS diagnoses of PTSD may have to be further validated. Nevertheless, the two groups also differed significantly on self-rated measures of PTSD, suggesting more severe PTSD symptoms in the non-activist group.

Predictor analyses (pooled groups)

A principal components analysis was performed on BDI, HAM-D, HAM-A, STAI-State, PTSD-RS, MMPI-PTSD and GHQ to examine their intercorrelations and also reduce the number of dependent variables for analysis. The analysis yielded only one component (70% of the variance; eigen value 5·6) which represented general severity of psychopathology (GSP) because it showed high positive loadings (range 0·74 to 0·87) on all measures. The study participants' scores on this component were computed for use in subsequent analyses.

The modified Turkish-language version of the PTSD-RS correlated highly with the MMPI-PTSD ($r = 0·80$, $P < 0·001$). Furthermore, study participants with and without a SCID/CAPS diagnosis of PTSD showed significantly different mean scores on PTSD-RS (97, S.D. = 19 *v.* 69, S.D. = 16, respectively, $t = -6·7$, df = 86, $P < 0·001$). The scale thus showed satisfactory external validity.

The Pearson correlation coefficients between the measures are shown in Table 4 (only predictor variables on which the activist and non-activist groups showed significant differences are included).

Time since last torture did not correlate with GPS or number of PTSD symptoms, suggesting that more psychological symptoms in non-activists were not attributable to the fact that they had been more recently tortured than had the political activists.

A stepwise multiple regression analysis was performed to examine the predictions between the 10 independent variables and GSP as the dependent variable. The independent variables were psychological preparedness for trauma, education, income, Turkish ethnic status (0·1), Kurdish ethnic status (0, 1), duration of detention, experience of court trials (0, 1), conviction from alleged crimes (0, 1), number of torture events experienced, and time since last torture.

Duration of imprisonment was excluded from the regression analysis because of multicollinearity problems arising from its high correlation with PPT ($r = 0{\cdot}61$) (due to more militant political activists having spent more time in prison). In order to test whether duration of imprisonment predicted GSP or number of PTSD symptoms when the effect of PPT was controlled for, separate regression analyses was conducted entering PPT at Step 1 and entering duration of imprisonment at Step 2 for each of the dependent variables. Using GSP as the dependent variable, PPT explained significant variance (R^2 change $= 0{\cdot}06$, $F = 5{\cdot}6$, $P < 0{\cdot}01$) at Step 1. The variance explained by duration of imprisonment at Step 2 was, however, not significant (R^2 change $= 0{\cdot}02$, $F = 1{\cdot}7$, $P = 0{\cdot}20$). Using number of PTSD symptoms as the dependent variable, PPT explained significant variance (R^2 change $= 0{\cdot}07$, $F = 7{\cdot}0$, $P < 0{\cdot}01$) at Step 1 while the variance explained by duration of imprisonment at Step 2 was not significant (R^2 change $= 0{\cdot}002$, $F = 0{\cdot}2$, $P = 0{\cdot}67$). Duration of imprisonment did not thus have independent predictive power.

When the ten independent variables were regressed on GSP, two variables entered the equation: PPT (R^2 change $= 0{\cdot}16$, $\beta = 0{\cdot}32$, $t = 3{\cdot}0$, $P < 0{\cdot}01$) and education (R^2 change $= 0{\cdot}04$, $\beta = -0{\cdot}25$, $t = -2{\cdot}3$, $P < 0{\cdot}05$). Similarly, when the same variables were regressed on number of SCID-PTSD symptoms, PPT (R^2 change $= 0{\cdot}12$, $\beta = 0{\cdot}48$, $t = 4{\cdot}6$, $P < 0{\cdot}0001$) and number of torture events (R^2 change $= 0{\cdot}07$, $\beta = 0{\cdot}29$, $t = 2{\cdot}8$, $P < 0{\cdot}01$) entered the equation. Thus, psychological preparedness for trauma was the most significant predictor, explaining 16% of the variance in general psychopathology and 12% of the variance in PTSD symptoms. Education explained only 4% of the variance in general psychopathology and showed no significant prediction on PTSD symptoms.

Because stepwise multiple regression may yield misleading results by capitalizing on small and unstable differences in predictor strength (Cohen & Cohen, 1975; Judd & McClelland, 1989), the analyses were repeated, using hierarchical method of entry, in order to test whether PPT explained any significant variance over and above the effects of all other predictor variables. This method of entry involved entering first all independent variables simultaneously at Step 1 and then PPT at Step 2.

Using GSP as the dependent variable, the variance explained by the nine independent variables (Step 1) was not significant (R^2 change $= 0{\cdot}10$, $F = 0{\cdot}99$, $P = 0{\cdot}45$) whereas the variance explained by PTT (Step 2) was nearly significant (R^2 change $= 0{\cdot}04$, $F = 3{\cdot}4$, $P = 0{\cdot}07$). Using number of PTSD Symptoms as the dependent variable, the variance explained by the independent variables was again not significant (R^2 change $= 0{\cdot}13$, $F = 1{\cdot}6$, $P = 0{\cdot}14$) but the variance accounted for by PPT was significant (R^2 change $= 0{\cdot}09$, $F = 9{\cdot}7$, $P < 0{\cdot}01$). Thus, PPT had predictive power over and above the effects of all other independent variables. Less psychological preparedness for trauma predicted more psychological symptoms.

What psychological mechanism may have accounted for the relationship between preparedness for trauma and psychological symptoms? One possible explanation is that less psychological preparedness for trauma related to greater perceived distress during torture, which in turn related to more severe traumatization. In order to test this hypothesis, we examined the correlations between PPT (higher scores indicate less preparedness) and the perceived distress ratings for individual torture events. Indeed, consistent associations were noted in all analyses (based on only those subjects who reported a particular event), reaching significance on blows on the ears ($N = 33$, $r = 0{\cdot}59$), threats of rape ($N = 40$, $r = 0{\cdot}52$), prevention of personal hygiene ($N = 53$, $r = 0{\cdot}46$), alternating gentle/rough treatment ($N = 39$, $r = 0{\cdot}50$) (all Ps $< 0{\cdot}001$), blindfolding ($N = 70$, $r = 0{\cdot}25$), water deprivation ($N = 32$, $r =$

0·35), restriction of movement ($N = 39$, $r = 0·32$), exposure to bright light ($N = 9$, $r = 0·68$) (all Ps $< 0·05$), and showing trends towards significance on asphyxiation ($N = 17$, $r = 0·47$), witnessing torture ($N = 59$, $r = 0·24$), verbal abuse ($N = 73$, $r = 0·21$), exposure to infested surroundings ($N = 25$, $r = 0·34$), prevention of urination/defaecation ($N = 44$, $r = 0·27$) and threats to family ($N = 44$, $r = 0·25$) (all Ps $< 0·10$).

DISCUSSION

Compared with the political activists, the non-activists showed more symptoms of anxiety, depression, and PTSD despite less severe trauma. Less psychological preparedness was also associated with poorer psychological status when the two samples were combined. These findings support our hypothesis that psychological preparedness for trauma, as defined in our study, plays an important role in determining the effects of the trauma.

It may be argued that the use of a historical comparison group in our study may have led to bias introduced by time changes in the nature of the study population. Our new sample was indeed different from the previous one in some characteristics but we managed to control for these differences statistically in examining the effects of psychological preparedness for trauma. Furthermore, the same methodology and sample selection procedures were used in both studies and the interviewers were trained for inter-rater reliability across studies. Although there are some differences in the socio-political context of torture from which the previous sample and some of the new study participants are drawn (ideological conflicts of the 1980s as opposed to ethnic conflicts of the 1990s), there is no compelling reason to assume that the current socio-political situation in Turkey is more conducive to traumatic stress reactions than that in the 1980s.

We attempted to minimize the chances of obtaining a sample which either over- or under-represented the psychological effects of torture. However, considering the rejection rate of 57% (of those who were contacted) and a possible association with more severe torture-related symptoms and the reasons for refusal (e.g. fear of retribution, fear of re-arrest and torture, reluctance to talk about past torture, unwillingness to 'have anything to do with authorities'), it is likely that our non-activist sample under-represented the psychological effects of torture. This problem, however, is unlikely to affect the validity of our conclusions because the groups differed in clinical status despite a sampling bias that minimises between group differences. A more representative sample might well have yielded stronger between-group differences.

What are the psychological mechanisms that make a person 'prepared' for trauma? PPT had items relating to: (*a*) prior experience with traumatic stressors and opportunities for training in mental and physical stoicism during political activity; (*b*) expectation of traumatic events; and (*c*) a belief system whereby torture is appraised as merely an instrument of repression used by the regime to protect the interests of the ruling class. These items were based on hypotheses reflecting several lines of evidence that are briefly discussed below.

The hypothesis that prior immunization to stressors protects against the effects of traumatic stress is in line with evidence (Williams & Maier, 1977; Moye *et al.* 1983) from experimental work with animals, which suggests that first learning that one has control over aversive stimulation can immunize the organism against the later behavioural, emotional, and physiological effects of exposure to uncontrollable aversive stimulation, even when the exact stressors may be different. Our finding of an association between less psychological preparedness for torture, more perceived distress during torture, and more severe psychological symptoms is consistent with this hypothesis.

Immunization against the effects of traumatic stress among the political activists may also have been reinforced during a long period of captivity and repeated exposures to various forms of stressors. Repeated exposures to stressors coupled with prior learning of effective coping responses may have enhanced their sense of control. Many experienced political activists use elaborate coping strategies, thus avoiding total loss of control during torture (Başoğlu & Mineka, 1992). The ability to maintain control during trauma has also been found to relate to effective post-trauma adaptation in combat veterans (Hendin & Haas, 1934). Immunization can also occur through habituation to the traumatic effects of torture as it is known that for some forms of aversive stimulation, repetitive exposures can lead to habituation to at least some of its effects (Maier *et al.* 1982).

In a review of the causal factors in psychopathology, Carson *et al.* (1995) pointed to the role of protective factors or influences that modify a person's response to a stressor, making it less likely that the person will experience the adverse consequences of the stressor (Rutter, 1985; Rolf *et al.* 1990). Protective factors include immunization to stressors, enhancement of self-confidence or self-esteem as a result of exposure to stressors that are dealt with successfully (Rutter, 1987; Hetherington, 1991), and attributes of a person such as easy temperament, high self-esteem, and high intelligence (Rutter, 1987; Hetherington & Parke, 1993; Hetherington, 1991). These factors may lead to 'resilience' or 'the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances' (Masten *et al.* 1990, p. 426). We do not know whether psychological preparedness for trauma is related to these protective factors but it might be that preparedness for a specific stressor situation rather than a general resilience to stressors is the critical predictor in our study. It is worth noting here that our PPT scale measures preparedness for a specific trauma rather than general resilience to various stressors. Sense of control over and preparedness for specific stressors are known to be better predictors of long-term psychological functioning than generalized beliefs about control as measured by locus of control scales (Başoğlu *et al.* 1994*c*).

The hypothesis that unexpected torture would relate to more severe traumatic stress responses was based on evidence that unpredictable stressors often have more aversive impact than do predictable stressors (Seligman & Binik, 1977; Mineka & Hendersen, 1985). Indeed, it is also well known that torturers deliberately vary the predictability of torture events to maximize their impact (Başoğlu & Mineka, 1992). We measured only prior expectations of arrest and not the unpredictability of individual torture stressors during captivity, so we do not know if the unpredictability of these stressors played a role in traumatization. It is conceivable, however, that the non-activists perceived the various torture events during detention as generally more unpredictable (and therefore more distressing) than did the political activists, because they had little or no prior knowledge of or experience with such events.

The third hypothesis concerning the survivors' belief system was based on cognitive theories of trauma (Lifton & Olson, 1976; Lerner & Miller, 1978; Foa *et al.* 1989; Janoff-Bulman, 1992). In a previous report (Başoğlu *et al.* 1996) we had found that both tortured and non-tortured political activists differed from non-activist (non-tortured) controls in having a more negative appraisal of the police and the state and stronger perceptions of danger, mistrust, and injustice in relation to state authority. Lack of beliefs concerning a 'benevolent state' may have protected the survivors from the traumatic effects of state-perpetrated torture. Similarly, trust in state authority and beliefs about safety and a 'just world' may have rendered the non-activists more vulnerable to the traumatic effects of torture but we have no data on their pre-trauma beliefs to confirm this.

Education has been found to be a significant predictor of post-trauma psychological status in previous studies of prisoners-of-war (Dent *et al.* 1987; Zeiss & Dickman, 1989) and other trauma survivors (Breslau *et al.* 1991). Indeed, education may be related to certain personal characteristics such as greater self-efficacy, emotional maturity, intelligence, and interpersonal skills which may facilitate perceived and/or actual control over traumatic stressors. In our study, however, education did not predict number of PTSD symptoms. The results of multiple regression analyses suggest that the predictive value of psychological preparedness for trauma cannot be attributed to education. Given the extreme, complex, and unusual nature of stressful situations involved in torture it makes intuitive sense that more previous experience with and preparedness for a stressor such as torture affords better protection against traumatic stress than higher education alone. Furthermore, our previous study (Başoğlu & Paker, 1995) showed a relationship between individual meaning or subjective appraisal of the stressfulness of torture events and subsequent PTSD symptoms. There is no reason to assume that torture survivors with higher education perceived less distress in relation to various torture events simply because of their education *per se*.

Our study does not clarify which underlying construct in psychological preparedness for trauma plays the most critical role in mitigating the effects of trauma. Disentangling these constructs may be difficult as most trauma events that violate beliefs about the world are also unpredictable. Unpredictability of stressors may be the primary factor and violation of beliefs a secondary phenomenon. Further research needs to operationalize concepts of unpredictability and uncontrollability of stressors, beliefs systems, meaning of trauma, and protective factors such as 'resilience' to traumatic stressors and coping strategies in torture survivors for a more detailed investigation of their role in PTSD.

In conclusion, our findings imply that psychological preparedness for trauma is an important issue in the assessment and treatment of torture survivors. Further clarification of cognitive and behavioural components of psychological preparedness may provide useful insights into mechanisms of traumatization and effective treatment strategies for torture survivors.

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